



NOTES

GENERAL INFECTIONS

GENERALLY, WHAT ARE THEY?

PATHOLOGY & CAUSES

- Localized, systemic disorders caused by microbial infections

SIGNS & SYMPTOMS

- See individual conditions

DIAGNOSIS

- See individual conditions

TREATMENT

MEDICATIONS

- Antimicrobials

OTHER INTERVENTIONS

- Drainage

ABSCESSES

osms.it/abscesses

PATHOLOGY & CAUSES

- Localized, circumscribed pus collection surrounded by inflamed tissue
- May develop in any body region
 - Superficial (e.g. skin, soft tissue)
 - Internal (e.g. lung, liver, brain)
- Caused by pyogenic bacteria (e.g. *S. aureus*, *S. pyogenes*, *S. epidermidis*, *P. aeruginosa*)
- Bacterial invasion → local inflammatory response
 - Suppuration (pus production)
 - Necrosis, liquefaction
 - Cellular debris accumulation
- Loculation, walling off of abscess by adjacent, healthy cells

RISK FACTORS

- Trauma
- Foreign body presence (e.g. body piercing)
- Intravenous (IV) drug use
- Dermatological conditions (e.g. cellulitis)
- Anatomical involvement-related risks
 - **Examples:** ascending infection → pelvic abscess, hematologic spread → central nervous system (CNS) abscess, local spread → liver abscess

COMPLICATIONS

- Spread to other tissue
- Fistula formation
- Sepsis

VISIT...

LANZAROTE
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SIGNS & SYMPTOMS

- Localized warmth, erythema, swelling, tenderness/pain, induration
- Fluctuant mass

DIAGNOSIS

- History, physical examination: characteristic findings

DIAGNOSTIC IMAGING

CT scan

- Central decreased attenuation area with circumferential enhancement ring

MRI

- T1: central hypointense area
- T2: hyperintense
- T1, T2: rim is iso- to hypointense

Ultrasound

- Internal abscess
 - Homogeneous fluid collection appears as hypoechoic region within tissue
 - Edema: cobblestone appearance—thin hyperechoic (dark gray) bands, anechoic (black) fluid

LAB RESULTS

- Ultrasound-guided needle aspiration
 - Specimen collection, culture

TREATMENT

MEDICATIONS

- Antimicrobials

OTHER INTERVENTIONS

- Incision, drainage



Figure 75.1 The clinical appearance of a pilonidal abscess.



Figure 75.2 A CT scan of the brain in the coronal plane demonstrating a cerebral abscess of the left frontal lobe. The abscess shows typical ring enhancement.

SEPSIS

osms.it/sepsis

PATHOLOGY & CAUSES

- Serious, life-threatening, systemic infection reaction
 - Microbial host barrier breach (skin, mucous membranes) → provokes host dysregulated immune response → proinflammatory mediator release (e.g. TNF- α , interleukins) → detrimental physiological effects, tissue damage
 - Endothelial damage, dysfunction; $\uparrow$ vascular permeability; microvascular dysfunction; coagulopathies

RISK FACTORS

- Bacteremia (most common) Gram-positive organisms
- Hospital/intensive care unit (ICU) admission → nosocomial infection
- Immune system deficiency
 - E.g. HIV/AIDS, hematologic malignancy, immunosuppressant medication
- Recent surgery/hospitalization → altered microbiome
- Indwelling medical device presence
 - E.g. urinary catheter, venous access device
- Bimodal age distribution
 - Infants, adults ≥ 65
- Community-acquired pneumonia
- Chronic disease
 - E.g. diabetes, heart failure (HF), chronic obstructive pulmonary disease (COPD)
- Genetic factors

COMPLICATIONS

- Severe sepsis → septic shock
 - Sepsis-induced vasodilation, hypotension
 - Unresponsive to fluid resuscitation
- Multiple organ dysfunction syndrome (MODS)

- Respiratory failure
- Disseminated intravascular coagulation (DIC)
- Metabolic acidosis
- Stress ulcer
- Treatment complications
 - E.g. ventilator-associated pneumonia, venous thrombosis
- Death

SIGNS & SYMPTOMS

General presentation

- Fever; tachypnea; tachycardia; hypotension; hypoxemia; $\downarrow$ urine output; $\downarrow$ PaO₂; edema; ileus, $\downarrow$ bowel sounds
- Altered mental status
 - Malaise, agitation, lethargy, stupor
- Signs of shock
 - E.g. cool skin, cyanosis, $\uparrow$ capillary refill, mottling

Quick Sequential Organ Failure Assessment (qSOFA)

- Score ≥ 2 → $\uparrow$ mortality risk
- See table

QUICK SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE

qSOFA (Quick SOFA) CRITERIA	POINTS
RESPIRATORY RATE ≥ 22	1
MENTAL STATUS CHANGE (GCS < 15)	1
SYSTOLIC BLOOD PRESSURE ≤ 100 mmHg	1

DIAGNOSIS

- History, clinical presentation, physical examination

LAB RESULTS

Blood studies

- ↑ white blood cell (WBC) count, left shift
- ↑ C-reactive protein (CRP), erythrocyte sedimentation rate (ESR)
- Indications of organ hypoperfusion, injury, dysfunction
 - ↑ lactate, ↓ platelets (may precede DIC), ↑ glucose, ↑ creatinine, ↑ bilirubin
- Coagulation studies
 - ↑ international normalized ratio (INR), activated partial thromboplastin time (aPTT)
- Blood cultures
 - Identify pathogen

TREATMENT

MEDICATIONS

- Antimicrobials
 - Initial broad-spectrum antibiotics until pathogen identified
- Hemodynamic support
 - Fluid resuscitation
 - Vasopressors
- Infection prevention
 - Vaccinations for at risk individuals (influenza, pneumonia)
- Complication prevention
 - Proton pump inhibitor

SURGERY

- Source control
 - E.g. infected device removal, abscess drainage)

OTHER INTERVENTIONS

Hemodynamic support

- Invasive monitoring

Respiratory support

- Supplementary oxygen; mechanical ventilation

Infection prevention

- Infection control practices
 - ↓ hospital-acquired infections (ventilator-associated pneumonia, catheter-associated bloodstream infections)

Complication prevention

- Deep-vein thrombosis prophylaxis
- Glycemic control